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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/797,264	03/10/2004	Matthias H. Regelsberger	H10210/JDP	5357

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EXAMINER	
PHAM, HAI CHI	

ART UNIT	PAPER NUMBER
2861	

DATE MAILED: 04/04/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/797,264	REGELSBERGER ET AL.	
	Examiner	Art Unit	
	Hai C. Pham	2861	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-25* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-25* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *10 March 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *06/24/05*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 6-9 and 16-18, 20, 23, 25 are rejected under 35 U.S.C. 102(b) as being anticipated by Kawabe et al. (U.S. 5,812,176).

Kawabe et al. discloses an image forming apparatus and a correction method for compensating the fluctuation of the exposure amount of each of the recording element, the apparatus comprising a print head (recording heads 3R, 3G and 3B) having a plurality of radiation emitting recording elements (each of the recording heads having an array of LEDs) for recording image data on a recording medium (recording paper P), and a correction device for addressing individual recording elements with a global reference data signal (the LED array being controlled according to image data) (Fig. 1), measuring the output emission characteristics of recording elements (measuring three times the brightness E_i of each of the recording element), calculating the difference between the average emission characteristic of the recording elements and the individual emission characteristic of each recording element (calculating the averaged value E_o of all brightness values to be used as the reference brightness E_o and forming the ratio of the measured brightness E_i and the reference brightness E_i, to be used as

the compensation data C_i and stored in the compensation memory 4), altering the output emission of recording elements as a function of the calculation (the compensation data C_i being used to compensate for the fluctuation of the brightness of target recording element) (col. 25, line 50 to col. 26, line 20).

Kawabe et al. further teaches:

- the difference corresponds to a difference between an average linear rate of change and the linear rate of change of individual recording elements (e.g., the changing ratios R2(j), R3(j), R4(j) of the light amount as measured with a set of plural light emitting elements being driven using the individual light amount E1(j) as reference) (col. 24, lines 7-46) (col. 25, lines 39-49),
- the difference corresponds to a difference between an average linear rate of change and the rate of change of individual recording elements that is nonlinear and approximated by a quadratic function (col. 24, line 47-55) (col. 25, lines 39-49),
- the correction device stores the difference between a linear regression of the individual and average light emission characteristics and a difference between a non-linear regression of the individual and average light emission characteristics and the printer uses one or both differences to adjust the light output of the recording elements (col. 24, line 56 to col. 25, line 7),
- minimum and a maximum outputs are set based on the dimmest recording element (col. 23, lines 7-12).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1-3, 5, 11-13, 15, 22, 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawabe et al. in view of Lim et al. (U.S. 6,967,447).

Kawabe et al. discloses all the basic limitations of the claimed invention except for the average or the individual rate of light output being a function of applied voltage or supplied current of the LEDs.

However, it is old and well known in the art that the intensity of the light of the light-emitting element (LED) is proportional to the current being supplied to the light emitting element as evidenced by Lim et al. at col. 1 lines 9-30.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to set the intensity of the light as emitted by the light emitting elements in the device of Kawabe et al. in accordance with the amount of current supplied as taught by Lim et al. since Lim et al. teaches this to be well known in the art to produce the desired light amount by supplying the necessary amount of current to drive the light emitting element.

5. Claims 10 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawabe et al. in view of Maekawara et al. (U.S. 6,121,993).

Kawabe et al. discloses all the basic limitations of the claimed invention including the correction of the light amount being performed by grouping a plurality of light emitting elements, but fails to teach grouping together the LEDs with substantially the same difference data signal.

Maekawara et al. discloses a correction method for compensating the light amount of the plurality of light emitting elements included in the print head by dividing the plural light emitting elements into groups within the range where the unevenness id not visually discerned (col. 4, line 66 to col. 5, line 8).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the device of Kawabe et al. by grouping the light emitting elements having similar unevenness for correction as taught by Maekawara et al. The motivation for doing so would have been to suppress inter-group dispersion of the light amount.

6. Claims 4 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawabe et al. in view of Lim et al., as applied to claims 1 and 11 above, and further in view of Maekawara et al.

Kawabe et al. in view of Lim et al. discloses all the basic limitations of the claimed invention including the correction of the light amount being performed by grouping a plurality of light emitting elements, but fails to teach grouping together the LEDs with substantially the same difference data signal.

Maekawara et al. discloses a correction method for compensating the light amount of the plurality of light emitting elements included in the print head by dividing the plural light emitting elements into groups within the range where the unevenness id not visually discerned (col. 4, line 66 to col. 5, line 8).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the device of Kawabe et al. by grouping the light emitting elements having similar unevenness for correction as taught by Maekawara et al. The motivation for doing so would have been to suppress inter-group dispersion of the light amount.

7. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kawabe et al. in view of Yoshida (U.S. 6,104,409).

Kawabe et al. discloses all the basic limitations of the claimed invention except for wherein if the determination results in a zero difference or if the determination is invalid, then no alteration is made.

Yoshida discloses a method for correcting the quantity of light emitted from the light emitting elements (LEDs) based on the difference between the re-measured value and the calculated value of the predicted quantity of light for each LED element in the array, wherein when the difference is zero, there is no correction (col. 13, lines 27-38).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to skip the correction of the light amount of the light emitting element in the device of Kawabe et al. when it is not needed as taught by

Yoshida> the motivation for doing so would have been to accelerate the process of light amount correction.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hai C. Pham whose telephone number is (571) 272-2260. The examiner can normally be reached on M-F 8:30AM - 5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen D. Meier can be reached on (571) 272-2149. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Hai Chi Pham

HAI PHAM
PRIMARY EXAMINER
April 3, 2006